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*The Jagiellonian University Museum of Pharmacy:
Candle Wheel and Apothecary's tradition of making candles and
wax to seal*

ABSTRACT

In the article, a 19th c. device for manufacturing candles, exhibited in the Kraków Museum of Pharmacy, is described. The article discusses also the tradition of producing candles and wax for seals by European apothecaries in the period from 13th to 19th century.

Keywords: museum, pharmacy, wax, wheel, seal, apothecary, manual, dyeing, colours, medicinal, inventory

The device shown in the photograph (Fig. I and II) above was used for manufacturing candles. The method consisted in pouring liquid wax over wicks attached to the wheel until candles of the desired thickness were obtained. This is one of the oldest ways of producing candles, and only the most traditional manufacturers who make candles by hand, still use today.¹

European pharmacists of old had manufactured candles and sealing waxes since the beginning of their profession. "Initially, the statutes of the pharmacists' guilds were rather imprecise, since they did not discriminate between various categories of merchants. (...) There were few rules which applied specifically to pharmacists and these merely stated that the candles they manufactured be properly made and that the imported spices they sold (pepper, saffron, nutmeg, etc.) be original".²

¹ For instance, here is how the website of Kraków's Wytwórnia Świec Kościelnych (a manufacturer of church candles, www.wytworniaswiec.pl [access: 8.08.2015]) advertises the company's products: "This **ancient** technique (...) is still used by the only traditional candle manufacturer of Kraków".

² A. Corvi, *Arti e Mestieri – Gli Statuti delle Corporazioni Farmaceutiche* (<http://www.farmacia.unige.it> [access: 23.09.2015]). The article deals with the beginnings of pharmaceutical organizations in the context of the merchant guilds which operated in Italian cities in the middle of the 13th c.

That Polish pharmacists used to produce candles is confirmed, among other sources, by the 1531 inventory of Piotr Guldenstern's pharmacy in Kraków. Apart from such objects as "tabula ad formandum zuccarum" ("a board for forming confectionery") or "lapis ad terendum colores" ("a stone for crushing pigments"), the inventory lists "circulus ferreus ad conficiendas candellas cereas" ("an iron wheel for manufacturing wax candles").³ Similarly, the 17th century will of a certain Jan Paprocki, a pharmacy owner from Lublin, mentions not only herb drawers and medicines in the form of "emplasters, unguents, syrups, and oils", but also candles.⁴ More evidence is found in point nine of an agreement between the pharmacists and spice merchants of Toruń, made in 1633 and renewed in 1654, which states that "wax torches and wax candles are to be manufactured and sold by pharmacists only, in accordance with the privilege granted to them by the city council".⁵

According to another source, in 1731 the pharmacists Florkowski and Grądkowski, on behalf of the pharmacists of Poznań, sued three merchants, Jan Rzepecki, Walenty Rzepecki, and Maciej Szaferowski, for the illegal selling of wax candles and tapers.⁶ The lawsuit was based on the privilege conceded by Augustus II the Strong in 1714, which banned merchants from selling candles and tapers under the penalty of the forfeiture of goods.⁷ Both sources suggest that pharmacists had enjoyed the privilege of manufacturing and selling candles from time immemorial, so to speak, and that they carefully protected themselves from attempts by other merchants to challenge their monopoly, which comes as no surprise, given that at that time candles were the basic source of light.

The tradition was preserved as late as the middle of the 19th century by, among others, Jan Zeh and Ignacy Łukasiewicz, two pharmacists from Galicia,⁸ who on the 23rd of November 1853 were granted a common privilege, approved by Vienna,⁹ of manufacturing ozokerite candles. Zeh himself manufactured and sold paraffin wax candles, along with other bitumen products, such as paraffin, machine lubricants and cart greases, after he had established a refinery in Drohobych in the years 1853 and 1854.¹⁰

Evidence that candle-making used to be very closely associated with pharmacists comes from a woodcut entitled *The Lamentation of Dead Credit by People of Various Professions* (Fig. III), in which the pharmacist (the figure in a black cloak, on the right) is shown with a candle rather than a medicine container or some other object typically identified with the profession.

³ A. Stabrawa, *Dawne apteki miasta Krakowa od XIV do XVIII wieku*, PhD dissertation, Kraków 1993, p. 341.

⁴ The State Archive of Lublin, „Acta Advocatialis” 1663–1670, Vol. 21, p. 240: *Testament Jana Paprockiego*.

⁵ E. Świeżawski, K. Wenda, *Materiały do dziejów farmacji w dawnej Polsce*, Warszawa, 1882–1887, part 2, p. 49.

⁶ Taper – a slender candle (Merriam-Webster Online Dictionary. 2010. Merriam-Webster Online. 1 March 2010 <http://www.merriam-webster.com/dictionary/taper> [access: 17.10.2015]).

⁷ L. Kostrzeński, *Materiały do historii aptek wielkopolskich*, Warszawa, 1929, p. 16.

⁸ Historic region of eastern Europe that was a part of Poland before Austria annexed it in 1772; in the 20th c it was restored to Poland but was later divided between Poland and the Soviet Union. ("Galicia." Encyclopaedia Britannica. 2010. Encyclopaedia Britannica Online. 06 Mar. 2010, <http://www.britannica.com/EBchecked/topic/223982/Galicia> [access: 5.12.2015]).

⁹ See footnote 8.

¹⁰ T. Pabis, *Pionierzy przemysłu naftowego. Jan Zeh* (www.libuszamuzeum.iap.pl [access: 3.12.2015]).

In the past just as in today's age, wax candles came in natural and coloured varieties, including white, red, green, and black (Fig. IV). It should be pointed out, however, that in the olden days pharmacists coloured wax not only for the purpose of producing candles and sealing waxes, but also to manufacture medicines.

Old formulas for dyeing wax are found, among others, in the Polish translation of the 16th century collection of formulas for medicines, cosmetics, dyes and the like, entitled *De' Secreti del Reverendo Donno Alessio Piemontese (The Secretes of the Reverende Maister Alexis of Piedmont)*. The formula for bleaching wax reads:

To bleach wax. Take as much wax as you need and twice as much spring water. Heat the two over a fire until the wax melts and all of it rises to the top. Take a glazed pot, so that you have a vessel with a smooth outer surface, rinse the pot with cool water and immerse it in the wax. Let the wax that has stuck to the surface cool, then remove it, peeling off thin layers. Repeat the procedure until there is no more wax on the water. Next, lay the wax out in the sun, preferably when May dew has settled, and turn over frequently until it becomes the colour of lead white. Some bleach wax like this for three days, and especially when the sun is the hottest, and since the layers are thin, the wax melts all the more easily. Hence they sprinkle it with well water twice a day.

The formula for green wax reads as follows:

To colour wax green: Of wax one pound, of finely powdered verdigris and olive oil one ounce each.¹¹ Melt the wax over a fire and, when it starts to cool, add the verdigris and the olive oil and mix thoroughly. To make the wax sticky and solid add some turpentine, just like you do when you prepare red wax.

Red wax was obtained in the following manner:

To colour wax red. In summer take one pound of wax and three ounces of turpentine. In winter, however, take four ounces of turpentine, one ounce of finely-powdered cinnabar, and one ounce of olive oil. Melt the wax with the turpentine over a fire, remove the substance from the fire, and when it has cooled a little, add the oil, then the cinnabar, and mix thoroughly. When the wax has cooled, store it away. Some use minium rather than cinnabar, three ounces for every pound of wax.

Finally, the formula for black wax in Piemontese's *Secreti* reads:

To blacken wax. Take a pound of melted wax, add fine black earth and olive oil, one ounce each, and mix thoroughly until the wax becomes solid. To make the wax sticky, add some turpentine.

A slightly different formula is found in the hand-written manual of apothecary Samuel Benjamin Elsner¹² (Fig. V):

Black wax. Of yellow wax 32 pounds, of litharge 8 pounds. Heat the two for three hours, that is until the litharge melts, then add 2 pounds of soot, mix and pour into metal containers.¹³

¹¹ The text uses the so-called Venetian system of measurement: one pound (Lat. *libra*) = 301 g, one ounce (Lat. *uncia*) = 25.1 g, one dram (Lat. *drachma*) = 3.14 g, one scruple (Lat. *scrupulus*) = 1.05 g, one gran (Lat. *granum*) = 0.05 g.

¹² Samuel Benjamin Elsner (1785–1870) was a pharmacist in Warszawa in the years 1815–1848.

¹³ Metal containers allowed for the wax to be heated and melted.

As I have already mentioned, pharmacists used to manufacture not only candles but also sealing waxes. For instance, the books of Prince Sigismund's¹⁴ court from 1503 contain a receipt for six pounds of red wax for the royal chancellery, bought from a pharmacist by the name of Jakub,¹⁵ while the 1778 inventory of the pharmacy run by the Dominican monks of Vilnius lists "red sealing wax" ("cera rubra sigillata") and "green sealing wax" ("cera viridis sigillata") – Fig. VI. Sealing wax was coloured by the same means as candle wax, that is with the use of verdigris (to obtain green wax), cinnabar (to obtain red wax), and so on (Fig. VII).

In Europe, wax was still used for sealing as late as the middle of the 19th century, even though a much better material, shellac, had been known since the 16th century.¹⁶ For example, the rear of the death mask of Frédéric Chopin (who died in 1849) by Jean-Baptiste Clesinger bears a wax seal of Maria Mickiewicz, Adam Mickiewicz's¹⁷ granddaughter.¹⁸ However, it is an established fact that formulas for sealing wax in 19th century pharmacists' manuals no longer listed wax as the basic ingredient but used shellac instead. For instance, a manual from a pharmacy in Żyrardów, now in the collection of the Jagiellonian University Museum of Pharmacy (manual no. 1728), contains the following formula for red sealing wax (Fig. VIII):

Red sealing wax:

*Shellac 2 lots*¹⁹

Venice turpentine 17 lots

Cinnabar 14 lots

Styrax 1 ounce

A slightly different formula is found in the manual of Józef Hanak, a pharmacist from Dobczyce (Fig. IX):

Sealing mass for diplomas

*Yellow wax 48.00*²⁰

Rosin 5.50

Venice turpentine 9.00

Oil of turpentine 2.25

Powdered cinnabar 9.00

The manual also contains a formula for golden sealing wax ("Lacca sigillata aurea") (Fig. X):

Golden sealing wax:

Shellac plates 210.00

Common turpentine 17.50

Gold leaf 9.00

¹⁴ Who later became King Sigismund I the Old.

¹⁵ A. Stabrawa, *op.cit.*, p. 43.

¹⁶ Shellac was first used to make sealing wax in 16th c Spain.

¹⁷ Adam Mickiewicz (1798–1855) – a Polish romantic poet, considered to be one of the country's greatest.

¹⁸ See the article *Trzy pokolenia Mickiewiczów przez 103 lata chroniły sekretu prawdziwej maski Fryderyka Chopina*, "Gazeta Wyborcza", 17 June 1999.

¹⁹ One lot equals about 12.5 g.

²⁰ This formula, as well as the following one, most probably uses the decimal system.

Naturally, even though candles and sealing waxes are no longer typically associated with pharmacy (see the woodcut *The Lamentation of Dead Credit by People of Various Professions* above), it should not be forgotten that even as late as the 20th century, pharmacists used wax to make preparations such as ointments, plasters or cerates.

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